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ABSTRACT

This document explains the college operating budget-what it is, its constituent parts, the procedures involved in its construction and its terminology. Section one reviews the background and future of the financial crises. Section two indicates the kinds of budgets, anatomy of the budget, and the budgeting process. Long-range planning, planning programs, and preparing budget documents are discussed in the remaining sections. Long-range planning objectives, external factors, internal factors, enrollment projections, review, revision, and approval are stressed. Program planning is viewed in light of academic planning, planning in nonacademic areas, revenue sources and estimates, and reviews and revisions. Unit budgeting, budget format, final review, revisions, approval, and budget amendments and reports are emphasized as phases of preparing the budget document. New approaches to management information systems and cost simulation models are indicated. A glossary and a 29-item bibliography are included. (MJM)

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UNDERSTANDING THE COLLEGE BUDGET

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WHY A MONOGRAPH ON COLLEGE BUDGETS?

This is a period of financial stress in our nation's institutions of higher learning. The attention of all has been focused on college and university finances. Yet, in my experience both as a college president and as a professor in a university teaching a course entitled, "Financial Aspects of Higher Education," I have found that there has been and continues to be a mystique surrounding financial matters in higher education. Business officers play the purse-strings game close to the vest, and faculty members are reluctant to show their ignorance of financial matters. There are some misconceptions and a general lack of understanding.

And yet it has become a matter of survival on most budget-conscious campuses today to have at least some grasp of budgets and budgeting. Faculty members, department heads, administrators, alumni, legislators, and trustees need to become familiar enough with the concepts and terminology involved so that they can participate more fully in discussions of budgetary matters and in the budgeting process itself.

This monograph is therefore written with the two-fold mission of dispelling the mystery which shrouds budgeting matters, and replacing it with information and insight.

It should be added in all candor that I have even more far-reaching hopes for this monograph--that it will ultimately foster freer, more meaningful communication among those involved in planning budgets; that it will

lead to more input from everyone affected by the budget so that more informed decisions can be made; and that greater understanding will be translated into more cooperation all up and down the administrative line. This should, in turn, add up to a better financial and academic situation on our campuses -- devoutly to be wished by all concerned.

To accomplish the objectives and long-range goals of this monograph, an overview of the budgeting process, both as it is and as it should and could be, is presented. Then a closer look is taken at the education and general budget -- the current operating budget with which the college is involved every year.

On the assumption that the reader has had no professional training in financial matters, this publication attempts to clarify what is going on, why, and who is involved all along the way. To allay the reader's fears of the mysteries of budgeting, it explains the college operating budget--what it is, its constituent parts, the procedures involved in its construction, its terminology.

I would like to express my appreciation for the help, technical and otherwise, of the following people: Dr. Cameron L. Fincher, Director, University of Georgia Institute of Higher Education; Mr. Shealy E. McCoy, Vice Chancellor for Fiscal Affairs, Georgia Board of Regents; and Mr. William T. Haywood, Vice President for Business and Finance, Mercer University, and President, National Association of College and University Business Officers.

G.B.R.

THE FINANCIAL CRISIS

BACKGROUND

The bleak financial situation on campuses across the nation has been amply documented. What is not as well known is that early warnings were sounded in 1965 while higher education was still in a period of relative solvency [11].

Two years later *Fortune* magazine surveyed twenty highly-endowed institutions and reported that they had been "living with a formula for bankruptcy for years" [19].

Subsequent studies by the Carnegie Commission on Higher Education [4, 7] supported the contention that higher education was indeed in a financial condition of what various writers have since termed a period of difficulty, trouble, ills, bind, squeeze, strain, and stringency.

Cheit termed the dilemma a "new depression" [7]. Byrnes and Tussing used the expression "financial crisis" in the title of their study [6]. Balderston preferred the term "stress" because the term "crisis," he said, "implies a peak of tension and then its end" and he saw no end to this chronic condition [1].

Regardless of the name given to it, legislators, trustees, alumni, and the general public have become aroused. The result is that greater effective and efficient use of financial resources is being demanded while

college and university costs are continually climbing. The public "still calls for more higher education; recent public actions, however, suggest an underlying belief that it should cost less" [23].

This squeeze has affected all institutions and has proven fatal to some. The question of "why" was raised immediately. Responses came from various sectors.

Those who took the large view pointed to the relationship between the economic stresses in society as a whole and the economic well-being of higher education. Some even considered financial stress a normal condition destined to remain with us, perhaps well into the twenty-first century.

Others held that colleges and universities have gone through a period of rapid growth--a kind of flaming youth when programs, research facilities, library resources, and staff were added with unbridled enthusiasm, unmindful of the pyramiding costs. They charged that colleges were completely unaware of the meaning of economy, much less interested in practicing it.

In 1971, the American Council on Education devoted its annual meeting to the financial crisis. Speakers agreed that the seeds of the dilemma were sown some years ago when a proliferation of new programs and rising costs of college operations began to outstrip income and force overcommitted colleges deeper into debt [1].

At first, emergency measures were taken, but soon the call was for more thoughtful ways

of stemming the red tide in college budgets. Attention quickly focused on the need for accountability of programs, and for more effective, efficient use of funds.

THE MONEY MYSTIQUE

One significant step in this direction would be to remove the mystique which has surrounded financial matters in higher education for years and still continues to becloud the subject. According to one source, "the budget and the audit, in many instances, are the most closely guarded secrets in the institution" [14].

The mystique was perpetuated by those who kept money matters a professional secret on the one hand, and by those who did not or could not find out about financial affairs on the other hand. Misunderstanding, suspicion, and conflict over money matters resulted. In addition, misconceptions flourished in this noncommunicative atmosphere.

Business officers and faculty members have had the greatest difficulties seeing eye to eye on financial matters, and neither side has done much in the past to reduce the suspicion and conflict which continue to plague them. "Suspicion and conflict between academic and financial administrators, when encountered, has generally arisen through application of the 'mystification principle' on both sides" [24].

Since many business officers have finance and accounting backgrounds from the business, military, or private practice worlds, they are unfamiliar with the classroom and

the research lab, and do not understand the prima donna tendencies of the people who work there. All too often they see faculty members and deans as gluttonous devourers of institutional funds.

Faculty members have their share of misconceptions, too. They tend to believe that business officers know little and care less about the essence of education: teaching, research, and service. They blame business officers for failing to stay on top of the financial situation, thereby allowing campus finances to get out of hand.

Moreover, faculty members have been reluctant to show their ignorance--or all too willing to show their lack of interest--when it comes to the vulgar subject of money. Many faculty members are unaware, for instance, that their salaries and benefits constitute a major portion of any college budget.

In addition, speakers at the meeting of the American Council on Education pointed out that tenured and senior faculty members have shown very little interest in making the educational process more efficient. There is "the feeling that attention to costs is somehow unrespectable" [23].

HOPE FOR THE FUTURE

In short, almost everyone concerned with higher education has become a scapegoat for the financial crunch at one time or another. Does anyone offer any solutions to this many-sided problem? The consensus seems to be that we need large doses of cooperation,

mutual trust, understanding, and involvement to ease the money problems of today and meet the educational goals of the future.

For instance, at its annual meeting in 1972, the National Association of College and University Business Officers advocated better understanding of financial matters among all academic personnel. The association favors a team approach to budgeting. It believes faculties and administrators should know more about sources of revenue, and should understand their role in budgeting for annual current expenditures.

The association published a manual in 1970 setting forth in detail the procedures for team budgeting [20]. Academic administrators are invited to workshops on this subject which are held periodically.

Much constructive thinking also emerged from the 1971 meeting of the American Council on Education. Smith presented a paper suggesting that faculty members take a greater interest in making the educational process more efficient and economical [23]. But, she added, it will also be necessary to remove certain "impediments inherent in administration in a university or college and in the budgeting process." This means making it possible for those who develop programs to work more closely with those responsible for funding those programs [23].

This suggestion was reinforced by another speaker. According to Scheps, "the budgeting process is going to have to be reformed, so that the faculty member will feel a sense of responsibility for the entire budget process and will be in a position to help judge

the financial impact of programs and activities that he has advocated" [22].

A case study of "institutional budget review, and priority setting" presented by Moos seems to indicate that the team approach to budgeting can indeed improve both the financial and academic situation on a campus. Moos reports that the institution which tried coordinated budget planning had "the most open and informed debate on the university's budget in the institution's history" [18].

Moos further notes that one of the faculty members who participated in this discussion dubbed it "Everything You Ever Wanted to Know About Budgets but Were Sorry You Asked" [18]. Hopefully the reader of this monograph will not have a similar reaction to the pages on budgets and budgeting which follow.

BUDGETS AND BUDGETING

The budget document is the outcome of the budgeting process. It represents graphically in words and numbers the results of a great deal of planning, data collecting, program analysis, priority determination, and cost estimation.

There are many definitions of budgets, reflecting the variety of reasons for which budgets are created and the ways in which they are used. The basic, somewhat traditional definition of a budget is given by *College and University Business Administration*: "A statement of proposed expenditures for a fixed period or for a specific project or program, and the proposed means of financing the expenditures" [25].

A somewhat different approach--one which sees budgeting as the allocation of resources--is advanced by Williams: "The central feature...is the allocation of a university's resources in accordance with long-range plans reflecting the broad social and cultural purposes of that institution" [27].

Currently there is a shift in emphasis away from purely fiscal planning to a more decision-oriented procedure which involves more planning, management information systems, and cost analysis [16, 17, 28]. Ideally, today's college budget document results from a college's analysis of what it can do in one year to achieve its goals with the total resources available during that year. All of this is quantified into dollars and

cents, but the stress is on the *process* rather than the numerals.

KINDS OF BUDGETS

Budgets vary tremendously in format, but they can be grouped according to their bases of computation, and according to the specialized types of expenditures which they deal with. Let us look briefly at some of the more common types of budgets.

Bases of computation

Line item budgets. These are perhaps the most commonly known budgets. For all practical purposes, all budgets use some line item format because the listing of items is a necessary part of planning any budget. The personnel office needs such a listing to set up the payroll. This format also provides the accounting office and others information about the anticipated cost of any item on the list.

The line item used may be a large or small one. Often the term is used to refer only to large items such as personnel, equipment, and operating expenses. But a line item budget may also itemize expenditures within these larger categories, resulting in a gigantic list of detailed items.

Program budgets. The line item format does not go far enough, however, if the function of the college is to be considered and explained. The program budget permits a more thoughtful approach to budgeting. It can show the expenditures that are planned to accomplish certain

goals; can deal with inputs and outputs of the institution; and can emphasize cost analyses, such as the cost of producing degrees.

Incremental budgets. These "add on" budgets use last year's budget as a beginning base, and then determine how much money is needed in addition to that budgeted for last year. Increments and decrements are listed for the various budget items.

The danger in incremental budgeting is that the base may be taken for granted, and only the increment or decrement considered by the decision-makers. For example, if \$30,000 was budgeted last year for biology equipment, and an increase of \$3,000 is requested this year, the decision-makers might approve what looks like a relatively modest increase. However, what budget-makers often fail to consider is that the biology department has assumed that the \$30,000 allocated last year should be repeated, and that the actual request is for \$33,000, not merely \$3,000.

This type of assumption, often too hastily made, is responsible for some of today's financial problems at colleges and universities. By adding on small increments every year, departments have--often quite unconsciously--let the costs of programs balloon to unmanageable amounts.

Zero-base budgets. These start from zero each year and set new priorities. This is done in order to prevent unwarranted assumptions.

The State of Georgia's *Zero-Base Budgeting Manual* asks institutions to identify all functions and operations as "decision packages" which are to be ranked in priority order [29]. Theoretically the budget provides funding to the decision packages with the highest priorities.

Due to the repetitious nature and the difficulties of establishing decision packages for the traditional lecture courses, this budgeting method is used in the University System of Georgia (28 state-supported institutions) for all budgeted activities other than resident instruction which is funded on a formula basis.

Formula-based budgets. These use various formulas for computing anticipated expenditures, using a predetermined set of ratios and cost parameters. A slight shifting of formula elements, or parameters, can mean great increases or decreases in expenditure estimates. These can result in more or less appropriations or allocations in public colleges.

Practically all budgets contain some formulas, with computations based on a percentage or a standard rate. For example, faculty needs are directly related to enrollments by the use of a faculty/student ratio. Some states have formulas which are established by law for computing certain higher education appropriations.

Green gives a step by step description of how a formula is used in higher education budgeting [12].

Types of expenditures

Auxiliary enterprises budgets. These deal with activities which are largely self-supporting--those that obtain their income principally from sales or sources other than student tuition and taxes. Dormitories, bookstores, and cafeterias are examples of auxiliary enterprises.

Construction budgets. Obviously these cover construction projects of all kinds. These are budgeted separately because construction projects are long-range enterprises, and because they entail support from sources which are usually different from those in the education and general or auxiliary enterprises budgets. Their method of accounting is also a factor. Usually it is done by percent of completion or some other time frame which is different from that used in annual budgets.

Student aid budgets. These deal with scholarships, fellowships, and other student financial aid programs, rather than student activities or student housing. They set forth the anticipated revenues earmarked for financial assistance to students, and the plans for student aid expenditures.

Education and general budgets. These deal with expenditures that are made in the educational programs and general support services of an institution. Educational expenditures usually include the following classifications: instruction, research, service, and library.

General expenditure categories are: administration, plant operations, student services, and general institutional expenses.

In this monograph we are concerned with the E & G budget because it deals directly with the educational program -- the *raison d'être* of higher education. We will concern ourselves with budgeting as a decision-oriented procedure dealing with allocation of resources. This monograph will also concentrate on the program budget, particularly its emphasis on planning in the budgeting process.

THE ANATOMY OF A BUDGET

In a static situation

The simplest E & G budget would be that of a college whose operations are set, predictable, standard, with no exceptions made, no adjustments, and no change.

This college would have to have a small number of units, a minimum staff, minimum services, and a low level of faculty and staff benefits. It would have few buildings and few personnel.

It would have a set enrollment with little attrition. Its program would be single purpose. Classes would be of a regular size. There would be no failures as everyone would be in a lockstep program. All faculty would be paid the same amount and hold the same rank or none at all.

It would offer few, meagerly staffed services, and its physical plant would be small

with new, low-maintenance units. All its anticipated costs would be borne by one source of income.

While this college might be ideal from the standpoint of budgeting, it sounds like an educator's nightmare. Obviously such a situation is outside the mainstream of higher education, and probably this is all to the good. Such an institution is probably dominated by one person and has the goals and ambitions of one benefactor. Since it allows for no individual differences, it probably has a milktoast faculty.

But the reason we see few institutions which resemble this highly hypothetical case is that none could remain this way in the face of inevitable change. Similarly, we see few simple university budgets because of the variety and the multiplicity of changes going on among the elements which make up budgets.

Regardless of the size of the budget, complications arise when a new industry moves into the community, an art course is instituted, a distinguished professor is employed, a counseling service is inaugurated, a building suffers hail damage, or an anonymous donor gives the college one million dollars.

One result of the innovations and changes which occur constantly is that there is an increased need for more persons to make varied inputs into the budgeting process, and there is greater chance of disagreement on priorities and amounts of money required for different categories of expenses.

Very often one department's gain is another's loss, as illustrated by Williams in his graphic presentation of the "iterative analytical process of distributing aggregate resources under conditions of constrained choice" [27]. He uses radial lines showing departmental thrusts against an inflexible skin which is stretched in all directions. As Department A's program is enlarged and its radius increases, the skin stretches. Department B must then yield, and its radius shortens.

In a vital situation

Perhaps a better way of understanding the internal shifts and manipulations which occur on campuses--of understanding the concept of decision-making under constraints--is to envision the college as a living organism. It is subject to the growth desires of the cells within it and the constraining influences outside it.

The organism is composed of cells representing each funded function. Each cell either needs or demands greater or lesser amounts of funding. Since the total funds remain the same, each cell is affected by the actions of its neighbors. Cells can link up to form interdepartmental activities. They can also divide, as when anthropology splits off from sociology and becomes a specialty in its own right.

Some special cells are not subject to internal expansion pressure for funds nor to pressures from outside constraints. We all know these departments which are safely embedded in the institution, receiving neither

encouragement to grow from members of the department, nor pressures to limit their growth from administrators or other departments.

Of course the organism is prey to disease and malfunction, too. We all know of cases where cells (departments) have exerted great pressures in an attempt to break through their financial limitations. These aneurysms cause much shifting and realigning of the organism.

When external constraints are removed--e.g., when the legislature appropriates funds for a special program near and dear to its heart--the new cell sometimes gets stuck on to the exterior of the organism. It usually resembles a wart, both in appearance and in function.

Sometimes a cancer develops whose rapid growth saps the resources of other departments and the strength of the organism as a whole. For example, a cell like the English department might become overly active under the necessity to offer many new sections for a general enrollment increase.

Generally speaking, legislators will advocate surgery on this organism, while faculties clamor for injections to make the organism larger and healthier. In the meantime, administrators are usually running around putting bandaids on the aneurysms.

THE BUDGETING PROCESS

A current operating budget is a stop-action snapshot of the college's ongoing processes. Although it covers only one year of opera-

tion, the budget is part of a flow of activities, year after year. Budgeting cannot disregard what has been nor what might be in the future for the institution.

The process by which a budget document is created is therefore cyclical in nature. It has no beginning or end. It is continuous and overlapping. It is also confusing to the uninitiated because many activities with different time frames take place at the same time: one will be dealing with one budget year, another with an entirely different budget year, and still another with long-range plans which span several budget years.

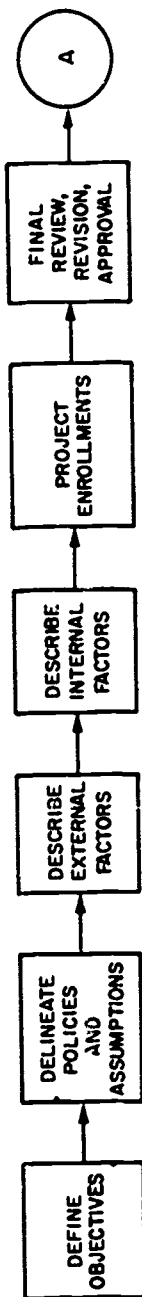
However, three distinct phases can be found in the budgeting process (see figure 1). Each phase has several steps through which work progresses on a time schedule. The cycle is complete when the budget is finally approved and put into operation.

Activities at the beginning of the cycle are somewhat more nebulous. The first phase consists of developing the required background information on which decisions will be based throughout the entire budgeting process. This information might include statements on the goals and objectives of the college, data about the college, data about external factors influencing the college, analyses of enrollments, and projections of enrollments.

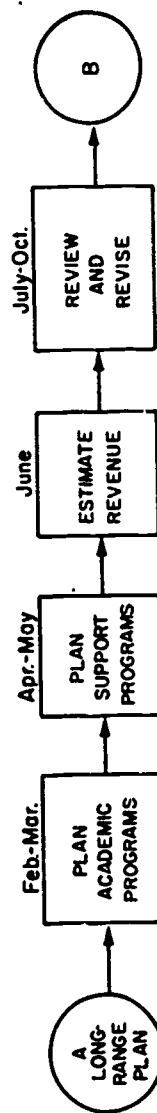
There should be sufficient projecting of the aspirations, data, and assumptions for this phase to be referred to as Phase I: Long-Range Planning. Naturally, this is a continuous process. Changes are being made

FIGURE 1
BUDGETING FLOW CHART

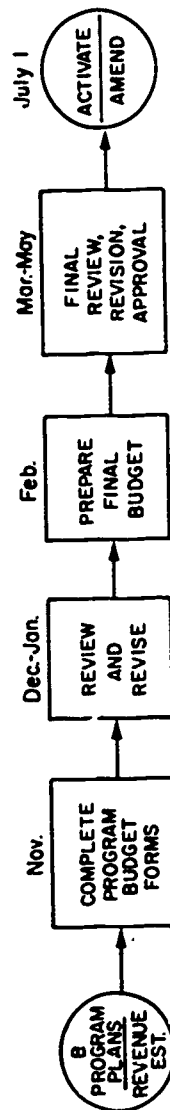
PHASE I: LONG-RANGE PLANNING (TEN-YEAR PLAN)



PHASE II: PROGRAM PLANNING (FIVE-YEAR PLAN)



PHASE III: DOCUMENT PREPARATION (ONE-YEAR PLAN)



constantly as new information, different plans, changing concepts, and innovations all necessitate revisions in the long-range plans.

In any case, once such background information is available for distribution, another planning phase is instituted. This will be discussed as Phase II: Program Planning. The timetable would call for this phase to begin about eighteen months before the anticipated effective date of the budget. It includes such steps as planning of academic programs, planning of support programs, estimating revenue, and subsequently reviewing and revising these plans and estimates. Coincidentally, this gestation period lasts about nine months.

It is at the end of this planning phase that budgeting, as many think of it, can begin. As Phase III: Document Preparation begins, the details of each unit's resource needs are given in dollar amounts. The larger decisions have been made previously. Now is the time for breaking functions and activities down into their constituent parts. The hammering out process reaches its fullest pitch as specific faculty needs are listed and salary raises are recommended. The budget document is then prepared and is reviewed by the president who submits it to the board of trustees for approval.

This process is set forth step by step in the sections which follow. The activities described are being conducted somewhere on each campus by somebody. In small schools one person could be doing several jobs. In a multiversity, many could be doing very

specialized segments of each task. It is hoped that the reader will be able to apply his own situation and interest to the phases and steps as they are discussed.

PHASE I: LONG-RANGE PLANNING

A considerable foundation is needed on which to build a current operating budget. This foundation is made up of historical data, situational factors, and enrollment projections. Pulled together, this information leads to a long-range plan covering an extended period--usually about ten years.

Budget builders also need basic information to frame a spending plan for the target year. The objectives of the institution must be set down. The factors which originate outside the college but which influence it should be analyzed and interpreted. The college's internal situation must also be spelled out.

College policies and assumptions must be articulated and--most important for budgeting purposes--the enrollment must receive special study, including projections of future enrollments. Without this kind of planning, any resulting budget can be questioned and its defense would be most difficult.

OBJECTIVES

The first order of business is the formulation and statement of college objectives. These are the basic canons which will be the benchmarks against which considerations of priority in the future planning stages will be measured. Bolin [2] lists various characteristics which sound goals should have: they must be realistic, clearly stated, accepted by those affected, and mutually compatible.

Too often budgeting is attempted in an ad hoc situation. Concerns of the moment, pressures of the day, and whims of present personnel constitute the milieu in which dollar amounts are placed on minimum plans. Nobody understands what was derived, or how, or even why.

And yet each institution has some sort of notion of what it is attempting to do in offering the activities for learning that it does. The better these objectives, the strategies for attaining them, and the analysis of resources that can be brought to bear on their accomplishment, the better the budgeting process will be.

Colleges indulge in a variety of methods of arriving at objectives. Too many are simply copied from the catalogs of sister institutions. But due to recent pressures from accrediting commissions, students, and others, colleges now involve faculty, students, administrators, and trustees in the process of defining their missions.

Efforts are now being made to define mission in terms of outputs of the college -- e.g., number of degrees granted. In the past, objectives have frequently been abstract and unachievable: "to develop citizens of a democratic society who appreciate beauty..." This sort of goal definition has proven to be unmeasurable if not unattainable.

EXTERNAL FACTORS

The setting in which the college finds itself is important. The college is a part of the order of things. It takes from and it

contributes to. It is at the mercy of larger movements -- social, political, and economic. These must be recognized and analyzed and recorded. The college's role in this milieu will determine many of the activities it should and should not carry on.

The international situation's influence on college budgets is seen as draft laws shift and change. The ending of a war or the start of one affects college-age youth and their college plans. The changes in the climate of international relations must be analyzed, therefore, in terms of effect on the college and its role in the international scene.

The nation's attitudes toward higher education should be assessed. The mood tends to affect the federal legislation which can include emphases on minorities, women, aged, on student financial aid, on assisting private colleges, on encouraging career education, on producing medical professionals and paraprofessionals to meet the nation's shortages, and on a myriad other thrusts and directions.

There are other external factors such as the economic well-being of a nation and the general influences of technological development that should be considered in assessing the influences under which the college will operate during the years covered by the long-range plans. Gross national product, construction price index, stock market averages, and other economic indicators will have a bearing on the plans. Federal funding legislation, funding in one's own state,

and private sources of support will all be considered as impacts on a particular college's economic and financial status during the target planning period.

INTERNAL FACTORS

Long-range plans usually contain a general description of the college, its location, accreditation, campus size, library holdings, and general comments concerning its faculty and students. But the budget-makers need more details about the internal workings of the college on which to base their decisions.

The following are some of the internal factors to which attention should be given. Data on present and past functions are needed, as well as projections of services and funding required for the future.

- ✓ The governance of the institution, from the trustees to the students: the legal bases of the college, the policy-making process, the power structures, the administrative functions.
- ✓ Faculty matters: policies and assumptions on faculty loads, ratios, tenure, ranks, salaries, fringe benefits, research time, sabbaticals, publishing required, and many other concerns affecting budgeting decisions.
- ✓ The student body: its composition, life styles, economic levels, attrition rates, services provided, activities and organizations, and many other areas of assessment.

- ✓ Curriculum matters: teaching styles, technological influences, policies on class size, grading practices, number of programs, degrees offered, and other class operation matters.
- ✓ The library and its service; the public service; the support services: the computer capability, nonprofessional and support staff considerations; as well as general services such as communication, printing, and other functions.
- ✓ Physical plant usage: data on maintenance costs, rehabilitation requirements, care of grounds, security.
- ✓ The financial situation: investment policies, tuitions, financial aid programs, sources of support, purchasing policies, general distribution of funds, and other considerations.

ENROLLMENT PROJECTIONS

One of the basic elements in budgeting is determining the anticipated enrollment. But enrollment is a rather elusive term. Whenever the president speaks to a group of interested citizens, he gives the headcount figure as enrollment -- the Chamber of Commerce approach. The registrar knows, however, that there are other enrollment figures that could be given: current headcount, cumulative enrollment, and full-time equivalent (or equivalent full-time) are the most common.

Enrollment figures

Headcount is the total of all the individuals who register for work at the college,

regardless of the amount of work taken. Cumulative enrollment is the total of different individuals who register over a year's period.

Let us assume 100 students registered in September. The first term of the academic year both the headcount and the cumulative enrollment will be the same--100. The next term, however, the returning students (85 of them) are *not* counted in the cumulative enrollment. Only the new students (20 of them) are added to the first term enrollment figure. In the second term, then, the headcount of students would be $85 + 20$, or 105 students actually present on campus. The cumulative enrollment would be $100 + 20$, or 120 different students enrolled since September.

Headcounts and cumulative enrollments are important in planning physical spaces and facilities. For example, two students on campus will use two parking spaces, even if they are enrolled only as part-time students.

On the other hand, for the purposes of planning departmental programs and other activities, it is important to arrive at a base unit for calculating enrollment. The use of FTE enrollment figures accomplishes this.

The full-time equivalent (FTE) student is one who is taking what the institution considers to be a full load of course work--usually 12 to 15 credit hours of class work per term. If 12 hours of course work is considered a full load, a student taking 6 credit hours would be a $6/12$ or .50 FTE in the record books.

Enrollments are projected over the span of time covered by the college's long-range plan. It should also show the enrollments over the last three to five years in various categories which are useful in planning, such as: the headcount and FTE by class years, by upper and lower division (and graduate level, if applicable), by sex, by department, and by degree objectives.

Enrollment projections are made by department heads for their activities, as well as by those who work at the college-wide level, such as registrars, admissions officers, and planning personnel. At the departmental level, enrollment estimates are based on departmental perspectives--the need for offerings, and the limitations of staff, space, and time.

Top administrators, on the other hand, are painting with a broad brush. They are concerned with gross figures and are cognizant of political winds, federal pressures, and needs of other departments. It is conceivable--and not at all unusual--that all departments could estimate increases in departmental enrollments, while the central administration could project an enrollment decrease for the target year. Such differences are reconciled during the iterative reviewing step.

Types of projections

Methods of estimating enrollments run the gamut from gazing into the crystal ball to utilizing projections of the ultra-sophisticated computer age. Regardless of the method used, the specter of a catastrophic event

which would drastically affect the estimate continually haunts registrars and comptrollers, not to mention presidents.

Enrollment estimates are always something of a gamble -- no better than the estimator and the raw materials he works with. The simplest and safest enrollment projection is the fixed one. There is little problem if a college has a limited enrollment and there are more than enough applications from new students to assure estimators that the limit will be reached at the next registration.

Using historical data is another method which is still depended on heavily. If a college has been growing at a steady rate and all looks well, the next year's enrollment is predicted on that constant growth pattern.

Among the hazards of enrollment projection, mobility of students stands out as a perplexing problem which is destined to become more troublesome. Students today tend to shift in and out of institutions, in and out of programs, sometimes changing degree objectives each year.

This can play havoc with top-of-the-head estimates of enrollments, as well as more thoughtful attempts at planning. But these student flow problems are now being tackled in several new ways which will be discussed in a later section of this monograph.

Another difficulty in the estimating business is projecting enrollment for new programs. The danger here is in assuming that this enrollment consists entirely of new

students, when actually most of the students in the new program will come from other departments in the same institution. How much this reshuffling will affect other departments is for the institutional researchers to determine, and even their estimates can be questioned.

REVIEW, REVISION, APPROVAL

Long-range plans are blueprints for the fulfillment of the institution's hopes and aspirations. They are broad, long-term, and visionary, yet they define rather definitely what the institution is to become and the routes it plans to take to achieve its objectives.

The organization and time necessary to accomplish the long-range plans serve purposes other than budgeting. Such plans are usually a part of a college's accreditation routine. Also, they are used to communicate the future image of the institution to its various publics. And presidents use its benchmarks to measure progress in annual reports to trustees and others.

Built into the process is the final step of any long-range plan, that of reviewing the plans, of revising the plans if necessary, and of official acceptance.

Because of its importance, the institution's long-range plan should be reviewed by all appropriate individuals and groups. Differences should be reconciled, and it should be forwarded to the president for his acceptance and recommendation to the trustees for official approval.

PHASE II: PLANNING PROGRAMS

Program plans are intermediate-range plans. They cover a period of time shorter than the long-range plan, but longer than the one-year period of the current operating budget.

Such medium-range planning enables a college to look at its operation on a continuous basis, and deal with adjustments before funds are committed to a program, project or activity. Adjustments can be made resulting from an evaluation of a reasonable block of time -- more predictable than the ten-year period and more representative than the one-year period.

Most colleges separate their functions into (1) academic matters, (2) student matters, (3) business matters, and (4) extramural matters. All units work on their program plans in relation to the overall objectives of the institution. Of course there is periodic coordination, and a review at the end with the inevitable revisions.

It is easier to understand a budget if it is set forth along these operational or functional lines--that is, if we have some idea of what the operation of the library is to be, or what is planned in the way of new faculty positions in a department or college. Also, we can visualize different units and their functions more clearly if we set forth plans for, say, student services or administration or plant operations.

Academic matters include instruction, library, research, noncredit extension work, and the operation of the academic dean's office.

Student matters include the dean of students' office; counseling activities; and the administration of student activities, student placement, and other student services.

Business matters include the physical and fiscal operations of the college. Public relations, development, and alumni affairs come under the heading of extramural functions.

Another college-wide expense area for budgeting purposes is usually referred to as "general institutional." This includes the costs of the extramural areas as well as general expenditures not directly chargeable to other units. Commencements, college-wide printing, campus mail services, and central duplicating are examples of such expenses.

There are also general administrative expenses for college-wide functions, such as the president's office and sometimes the registrar's office and admissions, if these have not been placed under academic or student operations.

ACADEMIC PLANNING

The previous section pointed up the fact that the simplest college operating budget is the one with the least number of variables. This means that no budget is simple, of course. But just how complicated things can get is best seen in the planning of academic programs--there is as much variety as there are faculty members.

The planning process imposes some standardization so that order can be brought out of

chaos and needs determined in an orderly fashion. A department usually formulates its objectives in keeping with those of the institution, and develops an intermediate plan covering a five-year period.

The plan will list courses taught and to be taught; courses dropped or to be added; and alternative proposals. It estimates faculty needs by rank, salary, qualifications, and other criteria. And it sets down the kind and amount of equipment, supplies, operating expenses, and space which will be needed during the five-year period. It should also project needs for learning resources, including audiovisual equipment, library, or computer.

Space requirements are usually analyzed in terms of needs for small rooms (seminar type), general classrooms, large lecture halls, offices, laboratories of all types, special purpose rooms (music studios), and other areas such as conference rooms or storage spaces.

Any interdisciplinary efforts or similar forms of interaction with other programs which are anticipated should be set down in the plan. If the department anticipates any sponsored research or has earmarked income, this too should be incorporated.

Academic units must also furnish a term-by-term projection of class offerings, enrollments, faculty needs, and student credit hours. These facts are tabulated to provide the so-called course and project data for the first year. This will serve as the basis for the more detailed budgeting which comes later.

The dean or other administrator in charge of the academic programs of an institution usually pulls these academic plans together and summarizes them along the lines of course projection data, faculty needs, and other recommendations covering the five-year period.

Plans are submitted to the committee or designated person whose task is to review it, revise it, and forward it to the president for approval.

Summaries of the approved academic plans are sent to support units to use in their planning activities. The plan is further analyzed and updated each year by the academic departments.

PLANNING IN NONACADEMIC AREAS

The nonacademic support functions include those offices or units which deal with students, business, physical plant, extramural affairs, and the general administration of the institution. These units analyze their functions and projects, and derive a five-year plan in much the same way as their academic counterparts.

Their intermediate plans must take into consideration the academic plans which have been submitted to them, as well as the college's long-range plan. They must be oriented to the unit's own unique objectives, while remaining geared to the objectives of the academic departments and the institution as a whole.

The support unit's five-year plan lists current programs and activities and describes

changes that are anticipated. The plan estimates number of personnel, their qualifications and salaries, as well as equipment, supplies, and operating expenses needed to conduct the unit's activities.

Space needs and support requirements for library, computer, and audiovisual service are estimated. The plans also record income which the college can anticipate receiving from operations or from funding for special projects.

Completed plans are forwarded to the reviewing group or individual who analyzes them, revises them, and forwards them to the president for approval.

REVENUE SOURCES AND ESTIMATES

It is at this point in the budget planning process that budget makers must determine whether or not a discrepancy exists between the cost of program plans of the academic and support units and the revenues that might reasonably be expected to materialize over the intermediate five-year period. A revenue estimate must therefore be made.

When the results of this estimate are in, academic and support plans are reviewed again in the light of this information. If the analysis indicates that adjustments in programs or income are required, then decisions must be made.

Let us look now at some of the most important sources of funding which budget planners in public and private institutions use to estimate potential revenue.

Tuition and fees paid by the student are a major revenue source for private colleges and an important one for public colleges. The student pays roughly one-fourth of his cost of education in a public college, and over 75 percent in a private college.

Estimates of these fees depend upon the enrollment estimates. The general computation method used is to multiply the average student fee paid by a full-time student by the estimated FTE. Another technique used is to multiply the average credit hour fee by the number of estimated credit hours to be offered.

Governmental appropriations constitute the major portion of operating revenue at the disposal of public colleges. With recent legislation enabling state funds to be used for private college operation, this source of funds is becoming a greater percentage of the revenues available to private colleges.

Some states have constitutional provisions or legislation that make the allocation of funds to colleges a formula situation. In such cases, the estimate is as good as the projected enrollment and other formula elements. Most state-supported institutions can get some information from a state budget unit about anticipated state revenues and the requests of competing state agencies for these revenues.

Private colleges are usually quite dependent upon endowment earnings. These are estimated on the basis of the expected performance of the stock market. Some large universities have extensive portfolios of securities whose income can fluctuate considerably if the more speculative issues are held.

Colleges, particularly private ones, watch the legislation affecting foundations closely to be able to estimate with greater accuracy the expected new gifts from that source. They maintain sophisticated development or advancement offices for fund-raising, and place emphasis on alumni drives for funds.

Unrestricted gifts are encouraged because they can be used for purposes determined by the college -- usually for E & G purposes. Gifts are often made for particular purposes with their use restricted by the donor's wishes (e.g., to build a library).

Government agencies have funds for federal grants to encourage education along the lines of their enabling legislation (e.g., health, minorities, agriculture). Anticipating revenue from such sources five years hence requires an educated guess as to which programs will be funded. The safest assumption usually is that such revenue will remain constant. Adjustments can then be made as new information concerning grants is received.

The recovery of indirect costs can be a sizeable source of income if the institution is involved in large numbers of funded projects, public service activities, or services for sale.

The sales of products or services by organized activities related to instruction are another source of E & G revenue. For instance, the reading clinic or testing bureau collects money for the use of its services, and this is income for the E & G budget, al-

though it is sometimes credited to the Reading Department account. This is likely to be a minor source of revenue, however, unless the service organization is of the magnitude of a teaching hospital.

Revenue sources of auxiliary and noneducational services will not be considered here. It is generally held that these types of services (such as a university press or a farming operation) should not take funds for their operation from the E & G budget.

It should be noted, though, that some private colleges derive a portion of their current operating funds from the earnings of dormitories, food services, athletics, bookstores, print shops, farm products, rental housing, laundries, and other auxiliary enterprises and services. Income produced from such enterprises is usually used to offset the expense of offering them to students on a nonprofit basis.

Although not computed as a true source of revenue, the reallocation of expenditures is being seen more and more as a way of generating what amounts to new income [5]. This concept calls for the reshuffling of institutional funds from areas or units where allocations are being inefficiently used to high priority areas with insufficient funds. In this way reallocation can provide new sources of revenue for special purposes, even though the funds were already in the budget all along.

REVIEWS AND REVISIONS

Reviewing the intermediate-range plans of all the institution's units is a formidable

task. The academic and support plans which have been conscientiously prepared will contain considerable data and detailed explanations of program projections and needs.

In the small single-purpose college which is not contemplating much in the way of change, the review procedure could consist of a minimal effort. Most institutions, however, will profit from using a knowledgeable group to analyze the plans presented.

Planning, Budgeting and Accounting suggests that an analytical studies group be used. Such a group should include a planning assistant (a presidential aide), a representative of the business office, four academic representatives, three support services representatives, and ex-officio professional advisors as needed. The chairman would be one of the academic representatives, and the planning assistant would serve as secretary of the group [20].

Although the composition would be altered according to the requirements of individual colleges, the planning manual suggests the following two basic responsibilities of such a review group:

- ✓ Analyze the program plans of all academic and support service departments using the following criteria: (a) responsiveness to institutional goals and objectives, (b) consistency with institutional policies, (c) economic feasibility, (d) coordination of academic programs, (e) coordination of support service plans with academic plans, and (f) consequences of alternative courses of action.

- ✓ Propose modifications of departmental program plans and prepare tentative program summaries incorporating these proposed recommendations [20].

Decisions which are made high up on the hierarchical ladder depend, of course, upon the information generated at the unit level. But there is far more flexibility at the higher level -- many more alternatives are open there than would be available at the course level [27].

This is so because decisions of college-wide review committees are based on the long view in terms of years, and the broad view in terms of functions and activities. From up at the top, budget analyzers can weigh a unit's request for equipment, let's say, in the light of what might happen in the next ten years, and what every other unit on campus is doing. From this vantage point, they can choose from a number of possible answers besides a simple yes or no.

The time frame in the Budgeting Flow Chart given earlier in this monograph allots about four months to this review and revision step (see figure 1). Such time is required if the process is to be one of thorough review of the academic and support plans, and a cooperative interchange of ideas and alternatives between the committee and the units.

Revision of a plan involves considerable reworking of the unit's labors of love. There are natural resistances to any committee-suggested change in a unit's plan, and practical politics within the institution will

manifest itself at this point. Besides, it is only too natural for personalities to enter into considerations at this point in the process.

However, the best interests of the institution and its constituents will be served if a conscientious review and rational revision procedure is utilized. The approved academic and support plans, along with the revenue estimates, must conform to the long-range plan. Taken together they form the basis for the detailed planning of the current operating E & G budget.

PHASE III: PREPARING THE BUDGET DOCUMENT

At this point in the budgeting process it is necessary to extract from the intermediate program plans information which deals with the cost of operating the institution for the next fiscal year. Just as the five-year program plans elaborated on the long-range ten-year plans, the current operating budget is a one-year segment of the program plan.

Unfortunately, this annual gathering of requests on budget sheets for the fiscal year ahead is all there is to the budgeting process as far as most participants are concerned. The planning process described in the preceding sections is too frequently nonexistent, or is done solely by the president or chief business officer.

UNIT BUDGETING

Each academic department, supportive service unit, or administrative office is asked to set down on paper its financial needs for operating the programs it has planned for the target year covered by the E & G budget. The units are provided with enrollment and financial data, as well as summaries of program plans of other units. Forms are furnished to gather information quickly and uniformly, and to facilitate handling and computation of data collected.

The forms usually call for facts and figures on what the unit plans to do during the

fiscal year (courses to be taught, projects to be handled); the personnel needed to accomplish its goals (their levels, salaries, etc.); the expense of operating the unit (supplies, communications, etc.); and the special equipment needed. Sometimes a figure on faculty benefits is also requested.

The budget forms request comparative data for the preceding fiscal period, the current year, and the budget year. The business office supplies information from its accounting records on the operation of each unit in previous years. Often the past year's actual expenditures are shown item by item, and an itemized list of budgeted items for the current fiscal year is given. The unit then supplies the estimated expenses for each item for the target year.

In order to facilitate the ultimate transfer of budget information into the accounting system, the information called for in the budget sheets is categorized in the same way as the accounting system: personal services, supplies and operating expenses, and equipment. These large categories are then broken down into the individual line items.

The budget request form for personal services in academic departments is somewhat more detailed. Information other than salaries is needed, including length of contract (nine or twelve months), individual positions, titles, and ranks. This information is used to establish payroll authorizations, among other things.

1

The personal services form might contain basic information something like that shown in figure 2. It indicates that position number 1 is held by Dr. John Doe, professor and department head, who is to be employed on a twelve-month basis (this means he is a 1.00 full time equivalent) at a recommended salary of \$27,000. It is proposed that he drop his instructional duties to assume a greater administrative load and to increase his research activities.

Dr. Smith, who is in position 2 on this form, is doing research and teaching on a nine-month contract (9/12 or .75 FTE). It is recommended that her workload be shifted to teaching and that her salary be increased from \$18,000 to \$20,000.

Other special forms are provided for listing anticipated expenses in operating the department for the target year. Sometimes the forms call for a lump sum estimate. At other times a rather detailed listing of supplies and operating expenses is requested. Justification for purchase of equipment is usually required on a separate schedule with detailed descriptions and cost figures.

Usually a letter of instructions accompanies the forms to set forth guidelines. It outlines policy and financial constraints regarding salary increases, the amounts to compute for price level increases, whether or not to include faculty benefits on the form, and how to treat other variables.

Sometimes a directive is attached to use certain formulas (such as faculty/student

FIGURE 2 BUDGET REQUEST FORM

DEPARTMENT		BUDGET REQUEST -- PERSONAL SERVICES				FISCAL YEAR	
POS. NO.	NAME	RANK/TITLE	DEGREE	NO. MOS.	ACTIVITY	CURRENT FTE AMOUNT	PROPOSED FTE AMOUNT
01	Doe, John	Prof	Ph.D.	12	Adm	.33 8,333	.50 13,500
		Head			Res	.33 8,333	.50 13,500
					Inst	.34 8,334	
		Total	1.00 25,000	1.00 27,000			
02	Smith, Jane	Prof	Ph.D.	9	Adm	-0-	-0-
					Res	.25 6,000	-0-
					Inst	.50 12,000	.75 20,000
		Total	.75 18,000	.75 20,000			

ratios) in computations, or to cut a certain percentage from the previous year's budget (a terrible way to balance a budget!). The directive may ask the unit to plan two levels of increased expenditures: one assuming a 5 percent increase, and another assuming a 10 percent increase. This method is used in an add-on type of budget, and has the double disadvantage of tending to discourage economies while placing a ceiling on development.

During the document preparation stage in the budgeting process, the business office will answer many questions. If the institution is large enough to provide the services of an office of planning and analysis (or one with similar functions), well and good. At any rate, there will be many requests for other information from units trying to complete their documentation.

All of the detailed budget sheets are pulled together by the business office or a group of persons designated by the president. The sheets are checked over for internal consistency and for compatibility with the plans on which they were based.

This same person or office will usually compile summary forms in order to simplify the presentation of the large financial picture. The summary will be made up of categories such as the total FTE, total anticipated expenditures for all major items, and costs of various functions and operations.

BUDGET FORMAT

The format of the completed budget document depends, of course, on the kind of budget the institution develops. The major sections of a budget document are: general statement of introduction, summary of income by source, summary of expenditures by major divisions and by major classes of expenditures (figure 3 gives one example), and supporting data.

The following types of supporting data are usually included: enrollment summaries by FTE and credit hours; faculty summaries by FTE, salaries, and ranks; support staff summaries by FTE, salaries, and levels; and equipment schedules.

Planning, Budgeting and Accounting suggests that an E & G budget provide sections on administration, general institutional expenses, student welfare, library, and instruction. The latter category would be further subdivided into individual academic departments [20].

FINAL REVIEWS, REVISIONS, APPROVAL

The budgeting process now moves into its final phases. It is at this point that the relationship between the cost of programs and the anticipated revenue for the target year are examined closely.

If the planning and programming phases have been conducted adequately, a considerable

FIGURE 3
SUMMARY OF EXPENDITURES

	TOTAL	PERSONAL	OPERATING	EQUIPMENT
	\$	\$	\$	\$
Instruction & Dept'l.				
Research				
Dean's Office				
Department A				
Department B				
Sponsored Research				
Extension & Public				
Service				
Library				
Student Services				
Administration of				
Activities				
Counseling Services				
Plant Operations				
Custodial Services				
Security				
Maintenance				
General Administration				
President's Office				
General Institutional				
Public Relations				
Development				
General Expenses				
Contingent Fund				
 Total E & G	 \$	 \$	 \$	 \$

number of adjustments between proposals made and funding available will already have been made. However, now that planning has been refined to specific estimates at the unit level, certain costs will emerge which went undetected and unsuspected during the more general stages.

In any case, when costs and revenues are compared at this stage of the review process, it is likely these days that funding will be found inadequate to meet the expectations of the units. First, questions are usually posed about the possibility of raising additional income: Should fees be increased? How much? What would it mean in revenue? In enrollment? Would increasing expenditures in the development office result in increased income? How much more?

Then attention turns inevitably to the reduction of expenditures. This means curtailing services, academic and otherwise, and gives rise to the following kinds of questions: What is the next best alternative? What would be the consequences if the program or service were eliminated? Which departments have highest priority in light of the institution's objectives? What will happen to staff and faculty? How much money could be reallocated from one unit or project to another? Are the cutbacks consistent? Are they fair? [5].

Bowen suggests that a larger view of modifying income and expenditures might be in order. He recommends that, instead of asking how income can be increased and expenditures decreased, the questions should be rephrased

like this: How can the rate of increase in income be speeded up? and How can the rate of increase in expenditures be slowed down? [3].

After the review is complete, the decisions have been made, and they have been discussed with the affected parties, final revisions are made in the budget document. The president then endorses and forwards the budget to the trustees for official approval--usually just in time for it to go into effect at the beginning of the fiscal year.

BUDGET AMENDMENTS AND REPORTS

Since budgets are prepared many months ahead of the start of the fiscal year in which they are to become effective, various conditions can change which necessitate last minute revisions [12]. These are in the president's purview and can be handled through ordinary in-house procedures.

However, if there are emergency last-minute alterations of considerable size or number, it is the president's responsibility to decide whether the entire budget must be revised. Depending upon the lateness of the change, he must also decide whether it can be submitted for approval to the trustees via the normal procedures, or whether to institute emergency measures to expedite the process.

Conditions will also change after the budget goes into effect. Budgets therefore can and should be amended during the year. In fact, amendments should be kept current so that needed funds are not lying idle.

There also needs to be a continuous review of the flow of income and expenditures. The business office does this, and generally makes reports to all concerned about financial activity in each budgetary unit. Units need an up-to-date picture of their financial status so that they can make expenditures efficiently and effectively.

In most colleges there is considerable shifting of funds from one section of a budget to another, when it is obvious that funds are not going to be expended for the particular purpose, program, or item for which they were originally budgeted. Such budgetary flexibility enables a college to meet its needs, bring about necessary changes, and innovate a bit.

These budget amendments are usually minor shifts of funds to maintain a degree of currency. The music department does not have sufficient enrollment to use the part-time instructor in flute, let's say, so the budget is amended to remove the amount budgeted from this item and to shift it to another account.

Other institutions are constrained in their ability to take savings from one unit and apply the monies to the needs of another unit. These constraints come in the form of legislative enactment, board policy, or administrative regulation. Sometimes colleges are permitted to shift funds if they are spent on the same category of item for which they were originally approved--e.g., if salary savings are spent for other salary needs, or equipment savings for equipment in another unit.

Scheps and Davidson prefer the method of lapsing funds into a general unallocated balances account, sometimes called the contingency fund [21]. The fund is increased by the same amount that the amount budgeted for the original item is decreased. Then when a need for extra funds in a unit is justified and approved, the necessary dollars can be shifted (on paper, of course) from contingency to that unit.

Institutions usually compile and distribute monthly budget reports to the various units. These give the department chairman a running account of his spending patterns month by month by comparing budget estimates with actual expenditures for all major categories. The reports also show which funds are encumbered (obligated but not yet expended) and which are not.

Budget reports for management and control purposes are not usually as detailed as departmental reports. Their main function is to call attention to major discrepancies where actual performance is considerably different from the budget estimate [25].

Other types of reports, dealing largely with fiscal matters rather than budget estimates, are prepared for trustees and presidents.

Meanwhile, the planning and analysis office (or some other office with this responsibility) maintains a steady output of cost data, enrollment projection changes, faculty workload reports, and other management information for special uses.

NEW APPROACHES

There is an obvious need for new budgetary tools and techniques -- new approaches to serving the academic as well as the fiscal needs of institutions. For this reason, new processes are being explored and used which allow for a more analytical approach to program and budget decisions than was formerly possible.

The emphasis is shifting from the fiscal budget to the program budget--from the traditional approach of being told how much one has available to spend, to the more thoughtful approach of being told, Let's take a look at what we're supposed to do and the total resources needed to accomplish our objectives. In other words, more emphasis is being placed on considering costs in terms of benefits rather than dollars.

MANAGEMENT INFORMATION SYSTEMS

Higher education is big business. Budgets of even the smaller, single-purpose colleges often reach the million dollar mark. Those who are responsible for a college's funds have always been mindful of using business-like management techniques in the accounting and investing of these funds. But today, with the financial situation reaching crisis proportions in too many colleges, the use of management techniques is becoming increasingly widespread.

Under the general heading of management information systems (MIS), methods are being developed for pulling all efforts together: academic offices, planning offices, business offices, plant operations offices. These data systems provide the required information for implementing such specialized budget systems as PPBS which are described below.

Planning, programming, budgeting system (PPBS)

The basic idea behind PPBS is that budgeting should be a way of allocating resources. PPBS advocates argue that most conventional budgets do not lend themselves to analytical decision-making about resources and ways of using them most expeditiously [27].

Program budgeting (PPBS), on the other hand, focuses on the desired output of an institution or business, and tries to find the right combination of input to produce this output. "Using program budgeting, the administrators are expected to understand and accept mutually agreed upon objectives, and then expend the funds on whatever mix of resources best accomplishes those objectives" [10].

The concept of program budgeting was first formulated by the RAND Corporation, and first used in the U. S. Air Force. In 1961 it was installed in the entire Department of Defense. The techniques learned have since been applied to other federal departments and agencies.

In 1966, the American Council on Education studied its applications to the field of

higher education [27]. But the difficulty in defining the output in higher education is a "significant conceptual problem," according to Farmer. The production functions for higher education are not known. "There has been no accepted algorithm for determining the resource requirements for a unit of output. Thus, higher education is not fully amenable to the formal economic analysis applicable to business" [10].

Nevertheless, many institutions have at least used phases of the PPBS procedure, such as setting objectives, grouping activities into programs designed to meet those objectives, identifying the resources required by the programs, and measuring the effectiveness of the programs in meeting the objectives. Many other institutions are attempting to bring PPBS concepts into their budgetary situations by establishing "crosswalks" or connecting procedures to bridge the gap between the traditional budget and PPBS.

In order to use PPBS, higher education has had to assume that its output is degrees awarded, total credit hours generated, or some other measurable and quantifiable feature of education. Institutional objectives have to be defined in terms of concrete, identifiable end products.

The A.B. degree thus becomes one of the "program categories" which produces the objectives of the institution. This program category can then be divided into "program subcategories" (e.g., the history department), which can in turn be subdivided into "program elements" (courses offered by the department) [21].

According to the PPBS concept, the cost of an A.B. degree in history is not the total institutional expenditures divided by the total number of graduates multiplied by four years. It is also not just the history department expenditures for four years divided by the history graduates.

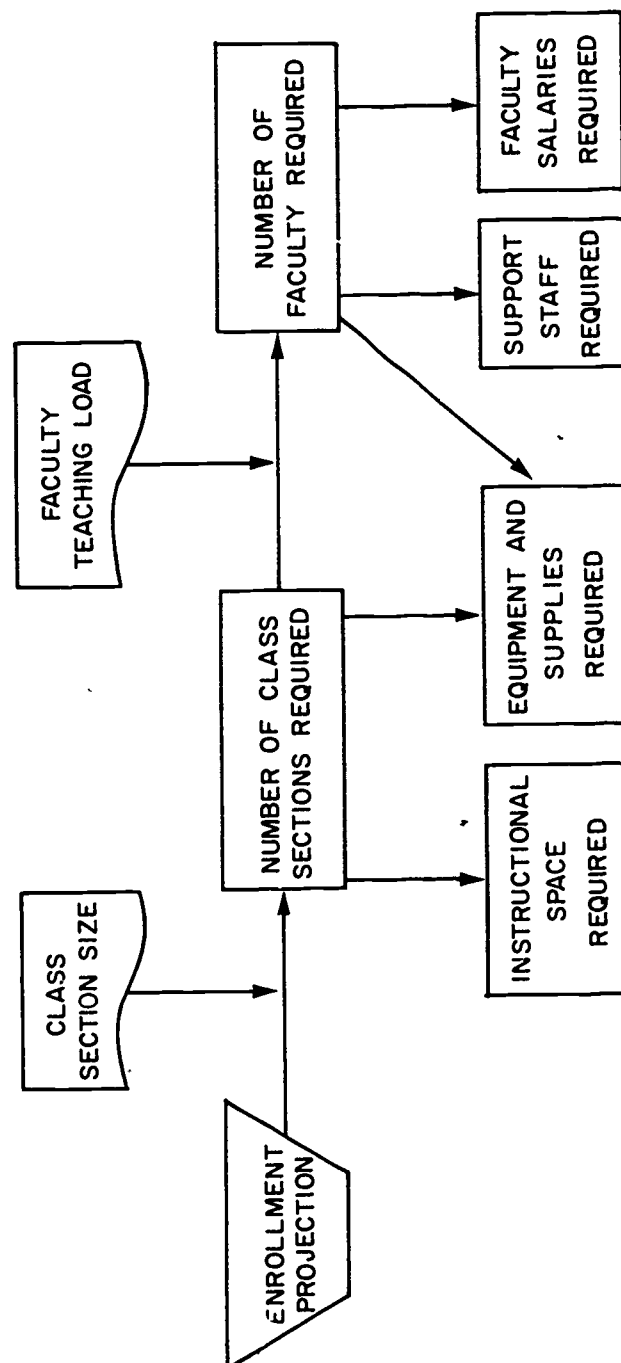
PPBS recognizes that the average A.B. degree winner in the field of history has had course work not only in history but in biology, fine arts, English, and many other departments. PPBS would therefore collect the credit hours and resources from the various departments (program subcategories) and place them in the proper program category (degree) to which they have contributed [8].

Basically PPBS is a way of thinking about budgets rather than a technique for producing one. However, certain advanced tools--computer models and matrices--are needed to produce the data which PPBS requires. These sophisticated and sometimes complex techniques are needed to manipulate data rapidly enough to produce the cost effectiveness and benefit analysis functions which underlie PPBS.

COST SIMULATION MODELS

Efforts are being made to devise models which will yield the kinds of management information needed to make management decisions for PPBS and similar budget systems. Figure 4 shows one example of a cost simulation model which helps institutional planners to compute the amount of instructional space, supplies, and equipment required, as

FIGURE 4
COST SIMULATION MODEL CONCEPT



SOURCE: Visuals Used in PMS Seminars, 1971, p. 23.

well as the total of support staff and faculty salaries which will be needed.

As figure 4 illustrates, the inputs into this model include the projected enrollment by program and by student level, and projected department operating parameters for each department. Figure 4, which is greatly simplified, uses class section size and faculty teaching load as operating parameters.

Several other models have been designed to aid colleges in the mammoth budget planning tasks ahead by the Western Interstate Commission for Higher Education (WICHE) through its federally funded National Center for Higher Education Management Systems (NCHEMS).

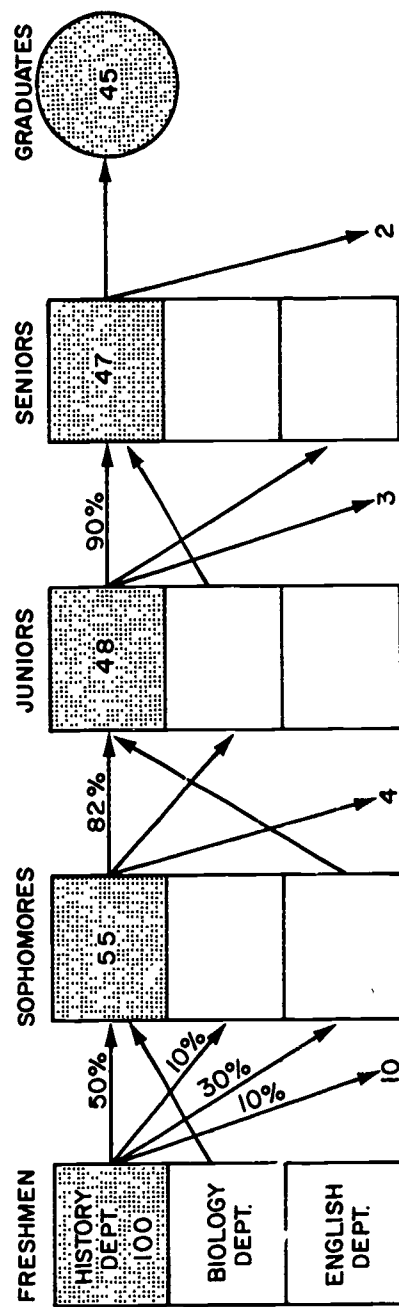
Resource requirements prediction model (RRPM)

The RRPM is a sophisticated, computer-based cost estimation model designed by NCHEMS to simulate the cost of operating a college campus over a ten-year time frame. Using enrollment projections as raw material, the RRPM yields appropriate data on which programmatic decisions can be made rapidly.

Two important ingredients of the RRPM are the student flow model and the induced course load matrix (ICLM). Let us digress briefly to look at these two concepts.

Student Flow Model. Figure 5 illustrates the student flow concept. One hundred history majors enter as freshmen. Ten percent of these drop out during the year, and 50 percent continue to

FIGURE 5
STUDENT FLOW FOR HISTORY MAJORS



SOURCE: Visuals Used in PMS Seminars, 1971, p. 53.

major in history. Of the remaining 40 percent, 30 percent switch to a major in English and 10 percent to a major in biology.

On the other hand, five biology majors change to a major in history. This shifting and winnowing continues until graduation time when 45 students earn A.B. degrees in history.

The student flow concept provides a much more accurate picture of student enrollments than the usual methods which assume a static situation. Huff and Manning point out the flexibility of such a model. It can show the flow of various student categories (male, female, minority), can give a comparative picture of attrition rates, and can facilitate analyses of admission policy changes [15].

Induced Course Load Matrix. The ICLM consists of the average student credit hour load by field of study, by student level, by discipline, and by course level.

The three-dimensional matrix built for a large, multipurpose graduate institution can be quite complicated. However, figure 6 is a simplified diagram of an ICLM.

It shows that the average freshman-sophomore history major in this college takes 14 credit hours in the history department, 10 in biology, and 6 in mathematics. Biology majors, on the other hand, take 4 credits in history, 14 in biology, and 12 in math.

This means that if 100 lower division students are history majors (as the enrollment column in figure 6 indicates), they will generate 1,400 credit hours of work for the history department, 1,000 hours for the biology department, and 600 hours for the math department. In like manner, other majors will induce work loads in the various departments shown in figure 6.

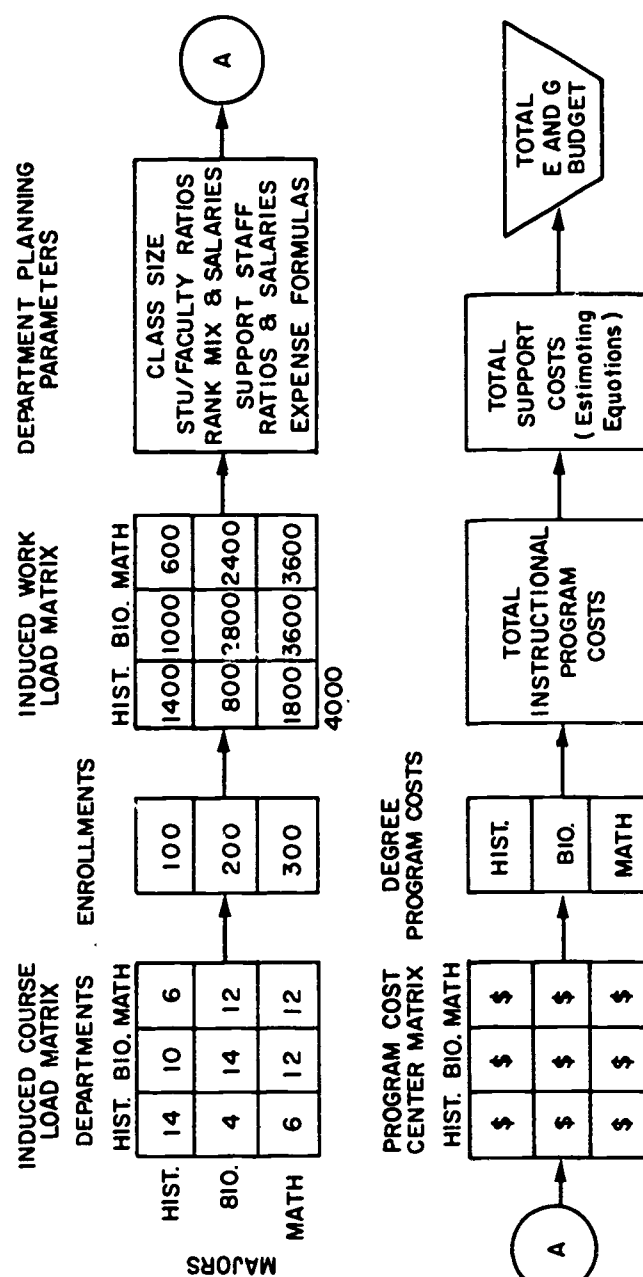
How RRPW Works. The model shows us that the history department will have an induced work load of 4,000 student hours at the lower division level ($1,400 + 800 + 1,800$). The history majors, on the other hand, will take 3,000 credit hours distributed in three departments ($1,400 + 1,000 + 600$).

Information from the induced work load matrix is now subject to certain department planning parameters -- that is, computations are made involving student/faculty ratios, class sizes, and other important considerations. The results are broken down by field of study, by student level, by discipline, and by course level.

Figure 6 shows how a program cost center matrix (PCCM) is constructed. It functions much like the induced course load matrix above it, with the costs of history majors taking history, biology, and math department courses being entered across this diagram. By adding up the contributions made by each department, costs can be figured for individual degree programs.

Instructional cost per student can also be

FIGURE 6
RESOURCES REQUIREMENTS PREDICTION MODEL



SOURCE: Huff and Manning, *Higher Education Planning and Management Systems: A Brief Explanation*, 1972, pp. 10-12.

calculated and, using that figure plus enrollment figures, the total direct costs of the instructional program can be ascertained [8]. In fact, many other facts and figures can be calculated at this point: costs by level of instruction, cost per credit hour, and cost per contact hour, to list only a few.

Finally, in order to arrive at the total institutional costs reflected in the E & G budget, one more piece of information must be added to the instructional program costs as shown in figure 6. We must add the support costs which are necessary to operate the various college activities. RRPM uses formulas called institutional estimating equations to arrive at the costs of administrative, library, and physical plant operations.

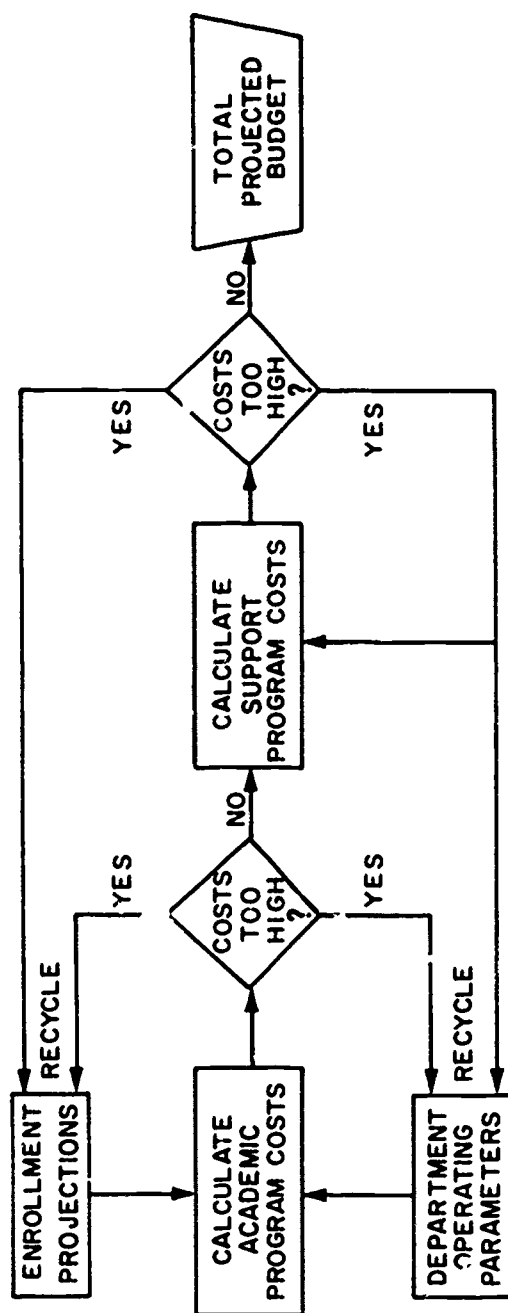
Budget planning with a cost estimation model

Figure 7 illustrates the use of a cost simulation model like RRPM. The products of the student flow model would be an input into enrollment projections. Departmental operating parameters must then be established in order to yield academic program costs as shown.

These costs are, in turn, compared with anticipated resources, so that decisions can be made in terms of objectives and priorities. Chances are that considerable recycling might be necessary.

For example, if academic instructional costs are too high, adjustments will need to be made either in enrollments or in department

FIGURE 7
BUDGET PLANNING WITH A COST ESTIMATION MODEL



SOURCE: Clark and Huff, Instructional Program Budgeting in Higher Education, 1972, p.20.

operating parameters such as class sizes, faculty workloads, and the like.

If final costs are not in line with anticipated income, it might be necessary to go back to support program costs to see if adjustments can be made there. Obviously the computer's rapid calculations serve a most useful purpose in working with models of this kind.

The RRPm package promises much, as do most models. However, evidently anxious about the uncritical acceptance of this tool, Heim said that the NCHEMS system deals with averages, yet administrators must deal with marginal inputs and costs. She issued this caveat, among others: "The new systems will give us a better idea of the size and condition of the forest, but we must still pay attention to the individual trees" [13].

Models such as the student flow model and the RRPm are, as NCHEMS claims, analytical tools. Properly used, such management tools can aid higher education in making wise decisions. They can help educators see and express more adequately what is going on, to predict with greater accuracy the effects of their decisions, and to respond more quickly to fiscal ups and downs.

In sum, these tools can help decision-makers in higher education conduct the educational enterprise more effectively and efficiently, and can help make higher education's various publics more confident that they are doing just that.

CONCLUSION

The day of the hidden budget is rapidly coming to a close. Too much ignorance of budget matters on the part of the faculty and too much singlehanded budget-making on the part of the administration has occurred in the past. Distrust has been the result. But this distrust is dissipating with the new efforts of national organizations, state-level groups, and some individual institutions.

Attitudes of cooperation are being built through the efforts of such national organizations as the American Council on Education, the Association of American Colleges, and the National Association of College and University Business Officers. Perhaps some joint meetings of at least committees of these and other organizations can provide a needed impetus to the encouragement of wholesome budgeting processes being instituted in the colleges and universities.

The federal government is working through grants to such organizations as NCHEMS to develop systems which can serve to standardize reporting and information valuable to financing higher education. It appears that much of the annual Higher Education General Information Survey conducted by the federal government will utilize classification systems derived from NCHEMS.

States are also looking for ways to meet the challenges. They are turning to studies of their financial conditions and the funding

of higher education, both public and private. Some universities have performed major studies and have undertaken major changes in their budgeting processes.

For example, the Ford Foundation supported a budgeting and resource allocation demonstration project at Princeton. And California State University in Fullerton launched a federally supported project to implement some of the NCHEMS planning and management tools. These are waves that will eventually touch every college.

In the rush to solve the financial dilemma, straws will sometimes be grasped at. Under the stinging criticism of inefficiency, ineffectiveness, and chaos, higher education will have the tendency and temptation to become businesslike.

What Etherington had to say about this as he addressed the annual meeting of the Association of Governing Boards of Universities and Colleges bears repeating. It is appropriate today, and it can be applied to any effort we make that is not completely compatible with the ends of higher education.

Some whose support we seek will suggest that the solution is to adopt a business-tested systems analysis and systems management approach to academic affairs. But the solution is not that simple. We must point out that the mysterious processes of teaching and learning are too elusive and too precious to be tampered with in the name of managerial efficiency.

The cultivation of the free and discerning mind, the liberation of man's extraordinary imagination, the stimulation of his rich capacity for intellectual growth, the development of his whole personality -- these cannot be programmed. They virtually defy description and surely defy building-block analysis [9].

Incidentally, he goes on to say that the college he heads is working on a program budgeting system.

The task is partly to adapt business practices to education. But the greater challenge is to develop concepts, processes and procedures which are unique to the educational enterprise. Understanding one's own institution's operation and the budgeting for achieving its goals is a start.

The foregoing has taken the reader through the three phases of a sound budgeting process and the steps involved in each. There has been a presentation of terms used in budgeting and a list of references for those wanting to pursue the subject further.

There was a purpose in not giving a how-to set of instructions. This was not to be a cookbook for those who do the shirt sleeve work on budgets. It was designed to enable the person who does not work in budget matters to better understand what a budget is, what is involved in budgeting, and the newer developments in the field.

The plea here has been one for cooperation,

for encouraging planning participated in by all who have a stake in an E & G budget. The emphasis has been on the process rather than technique, and on attitude rather than details.

Perhaps a follow-up monograph should be addressed to the how-to aspects--how to compute costs, how to estimate income, how to determine the materials and supplies needed, how to get the nonprofessional assistance required in a department, how to write up budget proposals, how to defend one's budget request, and how to deal in trade-offs.

It is hoped that the reader can see that a budget does nothing more than reflect the hopes and aspirations of persons. It does not restrict or allow -- people do these. The budget only shows what decisions have been made and puts a price tag on them. This implies an attitude shift from thinking of budgets as chiefly a mechanism for controlling expenditures, to that of thinking of them as a goal realization process.

GLOSSARY

ADMINISTRATIVE EXPENSE, GENERAL. Expenditures of the general executive and administrative offices on an institution-wide basis as contrasted with organizational units such as schools, colleges, instructional departments, and the library.

ALLOCATION. An allotment or apportionment of funds to the account of a particular subdivision (e.g., college, division, department).

ANNUAL OPERATING BUDGET. A financial plan for the operation of the institution for one fiscal year. The primary uses of an annual operating budget are to control expenditures and provide performance evaluation criteria.

APPROPRIATIONS, GOVERNMENTAL. A sum authorized by formal action of governmental bodies for specific purposes.

AUXILIARY ENTERPRISES. Nonacademic activities operated by the institution, most often as nonprofit and self-supporting services to students, faculty, or staff (e.g., residence halls, food services, and student stores).

BUDGET. A spending plan which reflects the movement toward objectives; the wise choices between alternative spending; and the effective and efficient use of the funds, as well as the effective and efficient obtaining of funds.

CONTINGENCY FUND. (See unallocated revenue)

DEPARTMENTAL RESEARCH EXPENDITURES. Expenditures for research done as a part of regular instructional services and budgeted as instruction and departmental research. The term excludes sponsored research and other separately budgeted research.

EDUCATIONAL PLANT. Buildings and fixed equipment used primarily for instructional, research, and administrative purposes, and for supporting service operations.

ENDOWMENT. Funds for which a donor has stipulated, as a condition of the gift, that the principal is to be maintained and that the income from the investments of the fund may be expended.

EQUIPMENT (CAPITAL OUTLAY). All movable property that is of a permanent nature.

FEES. (See student tuition and fees)

FACULTY LOAD. (See teaching load)

GENERAL INSTITUTIONAL EXPENSE. Expenses of offices and activities which apply to the institution as a whole except those for general administration and student services. Examples are alumni office, catalogs, commencement, and fees for institutional memberships in organizations.

INSTRUCTIONAL EXPENSES. Expenditures of instructional departments, including salaries, faculty office expense and equipment, laboratory expenses, and teaching supplies and equipment. The term includes departmental research not separately organized or separately budgeted.

LEVEL. Time and/or difficulty gradations of the total

curriculum and the students enrolled in it. Usually freshman, sophomore, junior, senior, masters, and doctorate. Sometimes lower division, upper division, and graduate and/or professional; or simply undergraduate and graduate.

LONG-RANGE PLANNING. The development of program plans in some detail for a time period of usually more than five consecutive years.

NACUBO. National Association of College and University Business Officers.

NCHEMS. National Center for Higher Education Management Systems.

NONACADEMIC PERSONNEL. A category covering those employees not holding faculty positions or those positions budgeted in sections of the budget other than the instructional section. Sometimes refers principally to technicians, clerical staff, and day labor.

OPERATING EXPENSE. (See supplies and expenses)

PERSONAL SERVICES. Expenditures for wages and salaries. Can include amounts to pay for fringe benefits.

PROGRAM. The group of interrelated activities and services offered by an academic or support services department. These activities and services should all possess or contribute to common unit objectives.

PROGRAM ANALYSIS. The examination of programs, activities, and projects for the purpose of identifying effective resource utilization in attaining college objectives.

PROGRAM PLAN. A detailed, coordinated plan of departmental activities to be undertaken within a five-year time period. Included in the plan should be the program content, the program objective, and estimates of resource requirements and their planned uses.

RANK. Designation of faculty standing. Usually instructor, assistant professor, associate professor, and (full) professor. Often tied to tenure and promotion policies.

RESOURCES. The combination of all available resources; sometimes subdivided into (1) human resources, (2) financial resources, and (3) physical or facilities resources.

REVENUE. Income for the institution produced by student charges, sales, security and property proceeds, gifts, and governmental appropriations.

SPONSORED RESEARCH. Research activities performed in accordance with the conditions of agreement with governmental agencies or other outside organizations or persons to conduct research of specified scope. Such agreements may be made on a cost or fixed-price basis, or on the basis of gifts or grants accepted by the institution subject to certain terms and conditions.

STUDENT/FACULTY RATIO. Derived by dividing the number of students enrolled by the number of faculty employed, usually expressed in terms of full-time equivalents.

STUDENT TUITION AND FEES. Matriculation, tuition, laboratory, and other fees, charged to students for educational services.

SUPPLIES AND EXPENSES. Expenditures for consumable supplies and for the operating costs other than those for personal services and equipment.

SUPPORT SERVICES DEPARTMENTS. Those units whose function is to support the academic department programs in an administrative, service, or supplementary capacity. All units other than academic departments fit into this category.

TEACHING LOAD. Number of hours spent in class sessions or total credit hours of courses taught. Sometimes weighted by multiplying the number of credit hours by the number of students enrolled in classes.

UNALLOCATED REVENUE. A budgetary account (sometimes referred to as contingency fund or unallocated budget balance) which represents the excess of estimated current fund revenue over expenditure allocations.

WICHE. Western Interstate Commission for Higher Education.

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Illustrates one approach (NCHEMS) to the preparation of an instructional program budget. Contains illustrations and text in easily followed format.

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Shows considerable insight into the problems ahead as we view this in retrospect. Advocates a degree of optimism which is rare in the beginning period of financial stringency.

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Points to the economic factors portending financial problems in higher education. Argues for maintaining private colleges and a mix of income sources in the face of pressures for massive federal aid.

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Sets forth a complete budget planning cycle with forms, letters, and other aids. Business officer oriented, yet represents a NACUBO effort to enlighten all who are patient enough to study the many diagrams in the step by step processes displayed.

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Opts for cooperation and trust in budget planning.

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- 28 WITMER, D. R. *Cost Studies in Higher Education. Review of Educational Research*, Winter 1972, 42 (1), 99-127.

Summarizes the literature in the field of higher education cost studies. Contains a rather extensive bibliography. Traces the historical development of cost studies.

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Describes the budgeting method one state is to use in preparing a fiscal year budget. Examples given are, unfortunately, based on agencies other than education.

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